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Plankton of the Bermuda Oceanographic Expeditions. X.
 Polychaetous Annelids from Bermuda Plankton, with
 Eight Shore Species, and Four from Haiti.¹

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(Text-figures 1-9).

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[This is the tenth of a series of papers dealing with the plankton content of a series of nets drawn through a cylinder of water off the coast of Bermuda on the Bermuda Oceanographic Expeditions of the Department of Tropical Research under the direction of Dr. William Beebe. Full details as to this circle of water, and of the dates, depths, etc., of the nets will be found in *Zoologica*, Vol. XIII, Nos. 1, 2 and 3, pp. 1-45, and *Zoologica*, Vol. XXI, No. 3, pp. 69-73.]

INTRODUCTION.

The following is an account of 23 species of polychaetous annelids collected primarily at Bermuda on the Bermuda Oceanographic Ex-

peditions of the Department of Tropical Research of the New York Zoological Society, plus materials relating to specimens collected on the Haitian Expedition of the Department in 1927. Three new species are described, the types of which are deposited in the collections of the Department of Tropical Research.

Systematic Account.

FAMILY AMPHINOMIDAE.

Hermodice Kinberg.*Hermodice carunculata* Kinberg.

Hermodice carunculata Kinberg, 1857, p. 13.

Collected at Cooper's Island, Bermuda, in mud, Sept. 11, 1931, Cat. No. 312,029. Nonsuch Island, Bermuda in shallow water, July 23, 1929, Cat. No. 29,135.

¹Contribution No. 614, Department of Tropical Research, New York Zoological Society.
 Contribution from the Bermuda Biological Station for Research, Inc.

FAMILY POLYNOIDAE.

Lepidonotus Leach.*Lepidonotus pilosus* Treadwell.

Lepidonotus pilosus Treadwell, 1937, pp. 141-143, pl. 1, figs. 1-7.

Collected at Bizoton, Port-au-Prince Bay, Haiti, March 22, 1927.

FAMILY SIGALIONIDAE.

Acanthicolepis Norman.*Acanthicolepis longicirrata* sp. nov.

(Text-figures 1-4).

Characterized by the long tentacles and cirri and by the large eyes. As seen from above the pigmented borders of the two eyes on either side are in contact (Text-fig. 1) and appear to run together, forming a heavy pigmented border to the prostomium. The lens of the posterior eye points laterally, thus seeming to bend the pigmented band toward the dorsal surface. The lens of the anterior eye is not visible from above.

Length 15 mm., width of prostomium 1 mm., greatest body width to parapodial bases 4 mm. in region of 9th somite. At first gradually, later more rapidly, the body tapers to about 0.5 mm. at the posterior end. Only one elytron remains and the preservation is such that it is impossible to be certain of the elythrophere count in later somites but the number is apparently 18. The prostomium is somewhat broader than long, each half ending on its anterior margin in a well marked peak. The cirrophore of the median tentacle is heavy, set into a shallow depression between the two prostomial halves. The style of the median tentacle is about the length of the palps, these 3 mm. long, colorless and curved, the apices diverging. Cirrophores of the lateral tentacles small, styles slender, reaching to about the middle of the palps. Only one tentacular cirrus and one dorsal cirrus remain, these being about as long as the palps. Each cirrus has a central opaque white core, the remainder being translucent. Apparently the elytra originally covered the dorsal surface but only one remains. This is so transparent as to be easily overlooked. On its surface are numerous, evenly distributed, low spines visible under a 40 diameter magnification. Its outline is approximately circular.

In a parapodium taken from in front of the middle of the body (Text-fig. 2) the notopodium is shorter than the neuropodium and the latter when seen from above has an inflated appearance, its longitudinal diameter being greater than that of the notopodium. The notopodial acicula is shorter but slightly heavier than the neuropodial, the former being covered nearly to its apex by a symmetrical tissue outgrowth. A similar outgrowth covers the neuroacicula but there is in addition a papilla lying parallel to the acicula end (Text-fig. 2). The ventral cirrus is slender and elongated, extending for nearly half its length beyond the apex of the setal lobe. The

notosetae are heavier than the neurosetae and form a diverging tuft which extends almost vertically from the notopodium. They are of two kinds, one straight and sometimes very heavy, the others shorter and curved. Both have transverse rows of plates whose margins seem not to be particularly toothed. The neurosetae are more numerous and more slender. The dorsal ones in the tuft are slender, have very sharp points and alternately arranged rows of toothed plates (detail in Text-fig. 3). Ventral to these are fewer and larger ones which enlarge toward the ends and then narrow to acute apices. A row of toothed plates lies along one margin of the tapered portion (Text-fig. 4).

The type was collected in Net 1,503, 600 fathoms deep, off Bermuda, July 25, 1934. Others were taken in Net 1,316, 800 fathoms, off Bermuda, Sept. 17, 1931, Cat. No. 312,135. It was also taken at Station 114: T-5, 500 fathoms, in the Hudson Gorge, 125 miles off New York City, July 8, 1928. The type is No. 3,465 in the collection of the Department of Tropical Research of the New York Zoological Society.

FAMILY PHYLLODOCIDAE.

Eulalia Savigny.*Eulalia megalops* Verrill.

Eulalia megalops Verrill, 1900, p. 601.

Collected in Castle Harbor, Bermuda, August 13, 1931, Cat. No. 311,247. Taken in a bivalve shell in coral.

Mystides Theel.*Mystides gracilis* sp. nov.

(Text-figures 5-7).

A slender species represented only by an incomplete specimen. What remains is 62 mm. long and about 1.5 mm. in diameter in greatest width. The prostomium (Text-fig. 5) has the form of a cone with rounded apex, the sides nearly straight lines. The eyes are large and have prominent lenses. Behind the prostomial margin is a small tubercle. The tentacles are about one-third as long as the prostomium. There are four pairs of tentacular cirri arranged according to the generic formula. The third pair are the longest, reaching somite 7; the dorsal of the second pair reaches to somite 5. Except for faint transverse lines on the anterior dorsum, the body is colorless. In most of the anterior region the dorsal cirri have been lost but those that remain are very small, barely reaching to the end of the setal lobes. Posterior ones (Text-fig. 6) are much larger, are rectangular in form and carried on heavy bases. In the setal lobe there is a slightly bifid posterior lip and a rounded one coming to the surface between them. In each parapodium there are about ten setae having rather heavy basal joints, enlarged and spiny at the ends. The terminal joints are long and slender, curved, and toothed on the concave margins (Text-fig. 7). The ventral cirri are longer than the setal lobe, have ovate outlines and acute apices.

FAMILY ALCIOPIDAE.

Vanadis Claparède.*Vanadis fuscipunctata* Treadwell.

Vanadis fuscipunctata Treadwell, 1906, pp. 1159-1160, figs. 29-31.

Collected in Bermuda in the following: Net 10, 400 fathoms, April 9, 1929, Cat. No. 2932; Net 1,175, 600 fathoms, Aug. 14, 1931, Cat. No. 311,761, color transparent, eyes scarlet; Net 1,262, 700 fathoms, Sept. 4, 1931, Cat. No. 311,807; Net 1,264, 900 fathoms, Sept. 4, 1931, Cat. No. 311,821, color dirty tan in general, eyes coral red; Net 1,275, 1,000 fathoms, Sept. 7, 1931, Cat. No. 311,866, color white, eyes scarlet; Net 1,308, 100 fathoms, Sept. 16, 1931, Cat. No. 312,073, color olive, eyes red; Net 1,321, 50 fathoms, Sept. 18, 1931, Cat. No. 312,167, color lemon yellow, eyes coral red; Net 1,508, 100 fathoms, Aug. 14, 1934, Cat. No. 34,256.

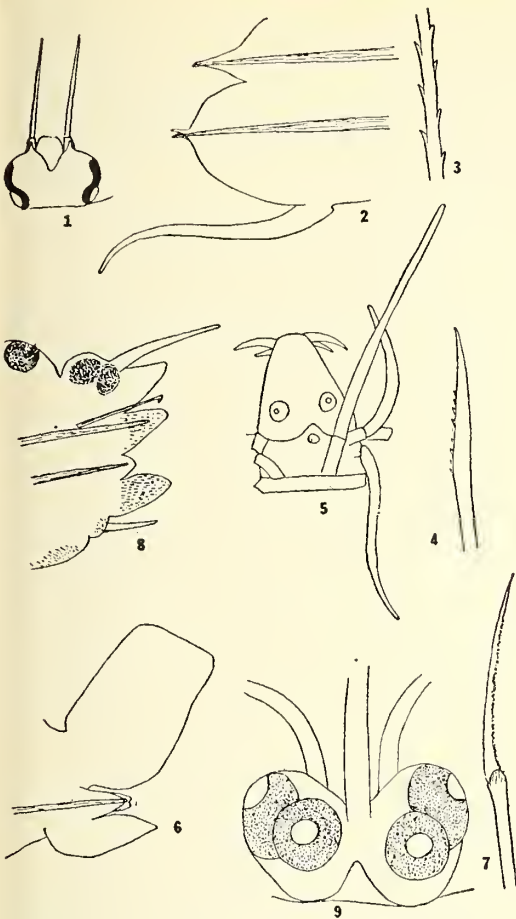
The following field-notes were made upon specimen No. 31,472 (Net 1,050, 25 fathoms, July 6, 1931), 23 mm. long:

Color: Eyes coral red with gleaming, brighter centers which are at the base of a tiny projecting crystal dome. Otherwise the animal is entirely transparent except for a yellowish, reddish, brownish or blackish spot behind the base of each lateral appendage. These spots are lightest and brightest when the worm is active or when it has been exposed for some time to bright light. There is no noticeable change in their size, except possibly a slight contraction after the worm was placed in the darkness of a refrigerator. The eyes paled only slightly when the worm was kept in darkness. As the worm weakened a growing opaqueness was noticeable.

Movements: Locomotion is principally by means of the short, three-leaved, shamrock-like paired appendages which, on alternate sides, are thrown abruptly forward and back so that the worm, seen from above, has a ridiculous sort of waddle. It seems to move either ahead or in reverse with equal facility and no apparent change of method. When greatly excited it shoots through the water with tremendous contortions, twistings and loopings of the entire body.

The partitions between the segments, as transparent as the body wall, are pierced by holes which, more or less rhythmically, though not in unison, expand almost to full diameter of the segment and contract nearly to pinheads. The funnel-shaped proboscis is likewise contractile.

This worm remained alive in the Bermuda laboratory for two days. It was kept in a quiescent condition in the refrigerator most of the time, but was revived at intervals of a few hours in the warm air of the laboratory. About five to ten minutes were required for it to show signs of life.



Text-figures 1-9.

1-4. *Acanthicolepis longicirrata* sp. nov. 1, head $\times 12$; 2, parapodium $\times 23$; 3, detail of stalk of neuroseta $\times 180$; 4, neuroseta $\times 85$. 5-7. *Mystides gracilis* sp. nov. 5, head $\times 15$; 6, parapodium $\times 33$; 7, seta $\times 250$. 8, *Nereis agassizi* Ehlers. Parapodium $\times 23$. 9, *Autolytus bidens* sp. nov. Head $\times 45$.

The type was collected in Net 1,179, off Bermuda at the surface, August 14, 1931, Cat. No. 311,288, and is in the collection of the Department of Tropical Research of the New York Zoological Society.

Lopadorhynchus Grube.*Lopadorhynchus uncinatus* Fauvel.

Lopadorhynchus uncinatus Fauvel, 1916, pp. 57-61, pl. 1, figs. 2-3; pl. 4, figs. 4-14.

Collected in Bermuda in the following nets: Net 1,321, 50 fathoms, Sept. 18, 1931, Cat. No. 312,166, color, pinkish tan; Net 1,337, 600 fathoms, Oct. 29, 1931, color orange.

FAMILY TOMOPTERIDAE.

Tomopteris Eschscholtz.*Tomopteris longisetis* Treadwell.

Tomopteris longisetis Treadwell, 1936, pp. 58-59, figs. 18-21.

Collected in Bermuda, Net 1,332, 600 fathoms, Oct. 28, 1931, Cat. No. 312,227, color white.

Fragments and young of tomopterids were collected in other nets at Bermuda, but none were identifiable.

FAMILY TYPHOSCOLECIDAE.

Travisiopsis Levinsen.*Travisiopsis atlantica* Treadwell.

Travisiopsis atlantica Treadwell, 1936, pp. 62, 63, figs. 30-33.

Collected in Bermuda in the following nets: Net 793, 700 fathoms, July 9, 1930, Cat. No. 30,477; Net 869, 1,000 fathoms, Sept. 10, 1930, Cat. No. 30,844, color orange yellow; Net 881, 600 fathoms, Sept. 12, 1930, Cat. No. 30,904, color orange yellow; Net 956, 1,000 fathoms, Sept. 28, 1930, Cat. No. 301,307; Net 1,258, 900 fathoms, Sept. 3, 1931, Cat. No. 311,778; Net 1,264, 900 fathoms, Sept. 4, 1931, Cat. No. 311,820, color transparent white.

FAMILY NEREIDAE.

Nereis Cuvier.*Nereis bairdii* Webster.

Nereis bairdii Webster, 1884, pp. 312-313, pl. 8, figs. 22-28.

Collected at the surface at Bermuda as follows: Net 982, surface, May 19, 1931, Cat. No. 3,124; Net 1,179, surface, Aug. 14, 1931, Cat. No. 311,286; dip net at night-light, Aug. 27, 1937. Those from Net 982 are in the heteronereis stage.

Nereis mirabilis Kinberg.

Nereis mirabilis Kinberg 1865, p. 170.

Collected in Bermuda as follows: Net 982, surface, May 19, 1931, Cat. No. 3,124A; Net 1,332, 600 fathoms, Oct. 28, 1931, Cat. No. 312,286.

Nereis agassizi Ehlers.

(Text-figure 8).

Nereis agassizi Ehlers, 1868, pp. 542-546, pl. 23, fig. 1.

A single specimen, doubtfully identified as this species. Its most characteristic features are the dark parapodial glands and the single heavy spine in each parapodium lying almost in contact with the notopodial acicula on its dorsal surface (Text-fig. 8). This also conforms with reasonable accuracy to the brief description of *N. kubiensis* as given by McIntosh (1885, pp. 210-212, pl. 34, figs. 3-6; pl. 16a, figs. 2-4). I was unable to get

a good view of the jaw apparatus which would have been confirmatory. Both of these species have some resemblances to *N. dumerilii* Aud. et M. Ed., but no diagnoses that I have seen of the latter species mention the heavy spine.

Collected in Bermuda, Net 1,237, 700 fathoms, Aug. 29, 1931, Cat. No. 311,651, color orange-yellow.

FAMILY LEODICIDAE.

Leodice Savigny.*Leodice stigmatura* Verrill.

Leodice stigmatura Verrill, 1900, pp. 641-643.

Collected in tidepool on Nonsuch Island, Bermuda, April 23, 1929, Cat. No. 2,945.

Leodice culebra Treadwell.

Leodice (Eunice) culebra Treadwell, 1901, p. 197, fig. 37.

Dredged off Nonsuch Island, Bermuda, 2 fathoms, Nov. 4, 1931, Cat. No. 312,339.

Leodice mutilata Webster.

Leodice (Eunice) mutilata Webster, 1884, pp. 315-316, pl. 9, figs. 36-40.

Collected in coral, Castle Harbor, Bermuda, May 1929.

FAMILY SYLLIDAE.

Autolytus Grube.*Autolytus bidens* sp. nov.

(Text-figure 9).

In a bottle labeled "luminous worms, from Castle Harbor, Bermuda" were numerous fragments of an *Autolytus* that is evidently of a new species. No entire individuals were present and I have no information concerning absolute size or differences in body regions. The prostomium (Text-fig. 9), is broader than long, its posterior margin deeply indented and almost its entire dorsal surface taken up by the eyes of which the anterior pair is the larger. They are dark brown in color and very conspicuous. The median tentacle is from six to eight times as long as the prostomium, lateral tentacles much shorter and a little more slender. Tentacular cirri about as long as the median tentacle. The first few dorsal cirri are long, later ones shorter but all longer than body width. Width of prostomium about 2/3 mm. The pharynx extends through six somites, the brown oesophagus through two, the stomach through seven. In the type the first twenty-one somites have only compound setae while later ones have in addition a tuft of long and extremely slender simple ones. With the appearance of the longer setae the antero-postero diameter of the parapodia increases, giving them a swollen appearance. There was no indication of sex products.

The compound setae are very small, the basal joint slightly widened and beveled at the end.

The terminal joint is extremely short and has a terminal tooth and a smaller one at about the middle of the concave surface.

Collected at surface, Nonsuch Island, Bermuda, Nov. 16, 1931. Type, No. 312,351, Department of Tropical Research, New York Zoological Society.

Haplosyllis Langerhans.

Haplosyllis gula Treadwell.

Haplosyllis gula Treadwell, 1924, pp. 11, 12, figs. 19-23.

Dredged in shallow water, Isle de Gonave, Haiti, June 1, 1927, Cat. No. 272.

FAMILY AMPHICTENIDAE.

Pectinaria Lamarek.

Pectinaria gouldii Verrill.

Pectinaria gouldii Verrill, 1873, p. 612, figs. 87, 87a.

Collected in Castle Harbor, Bermuda, Nov. 2, 1931, 2 fathoms, Cat. No. 312,342.

FAMILY OPHELIIDAE.

Ammotrypane Rathke.

Ammotrypane bermudiensis Treadwell.

Ammotrypane bermudiensis Treadwell, 1936, pp. 60, 61, figs. 24-26.

Collected at surface off Nonsuch Island, Bermuda, May 12, 1931, Cat. No. 317. Specimens dredged at 2 fathoms, off Nonsuch Island, Bermuda, Aug. 25, 1931, Cat. No. 311,675, and Oct. 3, 1931, Cat. No. 312,234.

FAMILY GLYCERIDAE.

Telake Chamberlin.

Telake epipolasis Chamberlin.

Telake epipolasis Chamberlin, 1919, pp. 346-348, pl. 63, figs. 4-8; pl. 64, fig. 1.

Collected at Bermuda, Net 1,179, surface, Aug. 14, 1931, Cat. No. 311,287.

FAMILY TERESELLIDAE.

Eupolymnia Verrill.

Eupolymnia magnifica Webster.

Eupolymnia (Terebella) magnifica Webster, 1884, p. 324, pl. 11, figs. 58-60.

Collected in Bermuda as follows: Nonsuch Island, tidepools, Apr. 23, 1929, Cat. No. 2,945A; Nonsuch Island, tidepools, Aug. 22, 1929, Cat. No. 29,158; surface at night, near Nonsuch Island, Sept. 13, 1931, Cat. No. 311,996.

FAMILY SABELLIDAE.

Dasychonopsis Bush.

Dasychonopsis conspersa Ehlers.

Dasychonopsis (Dasychone) conspersa Ehlers, 1887, pp. 226-270, pl. 54, figs 1-6.

From bottom of old barge, Bizoton, Port-au-Prince Bay, Haiti, Cat. No. 27,212.

FAMILY SERPULIDAE.

Spirobranchus Blainville.

Spirobranchus tricornis (Mörch) Ehlers.

Spirobranchus tricornis Ehlers, 1887, pp. 292-295; pl. 57, figs. 8-15.

Collected at Lamentin Reef, Port-au-Prince Bay, Haiti, Apr. 26, 1927, Cat. Nos. 27,379, 27,385, color red with golden setae.

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